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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,441	03/12/2004	Daniel J. Rockwell	RMS-030US	6243
23122	7590	08/23/2005	EXAMINER	
RATNERPRESTIA P O BOX 980 VALLEY FORGE, PA 19482-0980			HE, AMY	
			ART UNIT	PAPER NUMBER
			2858	
DATE MAILED: 08/23/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No. 10/799,441	Applicant(s) ROCKWELL, DANIEL J.	
	Examiner Amy He	Art Unit 2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Objections

1. Claim 15 is objected to because "conductor" is misspelled as "connector " (on line 2). Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Brooks et al. (U. S. Patent No. 6, 195, 241).

As for claim 1, Brooks discloses a method (in Figures 1, 2 and 5) for isolating a power line distribution (12) having a power conductor (16) and a neutral conductor (18) to aid in fault detection (arcing fault detecting) comprising the steps of:

identifying at least one segmentation point (the point at which the impedance device/ isolation device is connected) in the power line distribution (12); and

coupling an impedance device (isolation device 24a-n or 25a-n in Figure 1; or L2 in Figures 2 and 5; or blocking filter 23a-n in Figure 1; or isolation capacitor C8, col. 8, line 46) to at least one of the neutral conductor or the power

conductor at the at least one segmentation point to isolate the segment of the power line distribution (col. 8, line 42-col. 9, line 45).

As for claim 2, Brooks discloses inserting an inductor (L2 in Figures 2 and 5) in series with the power conductor (16).

As for claim 7, Brooks discloses at least one branch power line distribution (see the n branches as shown in Figure 1) having a branching point and coupling the impedance device (isolation device 24a-n or 25a-n in Figure 1; or L2 in Figures 2 and 5; or blocking filter 23a-n in Figure 1; or isolation capacitor C8, col. 8, line 46) to the branch proximate the branching point.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brooks et al. (U. S. Patent No. 6, 195, 241).

As for claim 8, Brooks discloses inserting an inductor/impedance device (L2 in Figures 2 and 5) in series with the power conductor. Brooks does not specifically disclose coupling the inductor/impedance device to the power conductor proximate a connection between the power line distribution and an underground feed point. A person of ordinary skill in the art would find it obvious at the time of the invention to modify Brooks to couple the inductor/impedance

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device proximate a connection between the power line distribution and an underground feed point, for the purpose of isolating/segmenting the distribution system at different locations for detecting the fault at the different locations.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brooks et al. (U. S. Patent No. 6, 195, 241), in view of Wittlinger (U. S. Patent No. 4, 012, 668).

As for claim 3, Brooks discloses the method as in claim 2, wherein the inductor is in series with the power conductor. Brooks does not disclose coupling an inductor in series with the neutral conductor proximate a connection between the neutral and earth ground. Wittlinger discloses coupling an inductor (70 in Figure 1) in series with the neutral conductor (12 in Figure 1) proximate a connection between the neutral and earth ground. A person of ordinary skill in the art would find it obvious at the time of the invention to modify Brooks to insert the inductor in series with the neutral conductor proximate a connection between the neutral and earth ground, as taught by Wittlinger, for monitoring fault in the power line distribution system.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brooks et al. (U. S. Patent No. 6, 195, 241), in view of Blose (U. S. Patent No. 3, 702, 460).

As for claim 10, Brooks discloses coupling the impedance device as in claim 1. Brooks does not disclose coupling the impedance device that exhibits relatively high impedance in the frequency range of 10 KHz to 1 MHz and exhibits relatively low impedance in a frequency range less than 100 Hz. Blose

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discloses coupling an impedance device that exhibits substantial impedance at high frequency and negligible impedance in a frequency range less than 100 Hz (col. 6, lines 49-58; claim 16). A person of ordinary skill in the art would find it obvious at the time of the invention to modify Brooks to disclose coupling the impedance device that exhibits relatively high impedance and exhibits relatively low impedance in a range less than 100 Hz, as taught by Blose, for impedance blocking. In addition, It would have been obvious to a person skilled in the art to further modify the impedance device of Brooks to exhibit high impedance at the specific high frequency range of 10 KHz to 1 MHz as claimed, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F. 2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

6. Claims 6, 11-12 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brooks et al. (U. S. Patent No. 6, 195, 241), in view of Rockwell et al. (U. S. Patent No. 6, 798, 211).

As for claim 11, Brooks discloses a power distribution system (12) including a power conductor (16) and a neutral conductor (18), comprising:

at least one impedance device (isolation device 24a-n or 25a-n in Figure 1; or L2 in Figures 2 and 5; or blocking filter 23a-n in Figure 1; or isolation capacitor C8, col. 8, line 46) coupled to at least one of the power conductor or the neutral conductor to segment the power distribution system into at least two segments(col. 8, line 42-col. 9, line 45).

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Brooks does not specifically disclose at least two fault distance indicators coupled to the at least two segments, respectively.

Rockwell et al. (U. S. Patent No. 6, 798, 211) discloses using fault distance indicators (410 in Figure 4A; abstract) for locating fault in a power line by modeling pulses of reflected traveling wave signals generated from electrical arcs.

A person of ordinary skill in the art would find it obvious at the time of the invention to modify Brooks to use fault distance indicators, as taught by Rockwell, for locating the arcing fault in each branch of the power distribution line.

As for claim 16, Brooks discloses the power distribution system (12 in Figure 1) including a power conductor (16) and a neutral conductor (16) including a main section and at least one branch section (any one of the branch as shown in Figure 1) that connects to the main section at the at least one branching point, the power distribution system comprising:

at least one impedance element (isolation device 24a-n or 25a-n in Figure 1; or L2 in Figures 2 and 5; or blocking filter 23a-n in Figure 1; or isolation capacitor C8, col. 8, line 46) coupled to the at least one branch section proximate to the at least one branching point.

Brooks does not specifically disclose a plurality of fault distance indicators coupled to the main section and to the at least one branch section, respectively.

Rockwell et al. (U. S. Patent No. 6, 798, 211) discloses using fault distance indicators (410 in Figure 4A; abstract) for locating fault in a power line

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by modeling pulses of reflected traveling wave signals generated from electrical arcs.

A person of ordinary skill in the art would find it obvious at the time of the invention to modify Brooks to use a plurality of fault distance indicators, as taught by Rockwell, for locating the arcing fault in each branch of the power distribution line.

As for claims 12 and 17, Brooks discloses that the impedance device includes at least one inductor (L2 in Figures 2 and 5) connected in series with the power conductor (16).

As for claim 6, Brooks discloses the method as in claim 1 wherein the power line distribution (12 in Figure 1) is relatively long and that the method step includes coupling a plurality of impedance devices (isolation device 24a-n or 25a-n in Figure 1; or L2 in Figures 2 and 5; or blocking filter 23a-n in Figure 1; or isolation capacitor C8, col. 8, line 46) to the power conductor at points along the power line distributions that are separated by a length suited for a fault distance indicator to segment the power line distribution. Brooks does not specifically disclose installing the fault distance indicators in each segment. Rockwell discloses installing a plurality of fault distance indicators (410 in Figure 4A; abstract). A person of ordinary skill in the art would find it obvious at the time of the invention to modify Brooks to install a plurality of fault distance indicators, as taught by Rockwell, for locating the arcing fault in each branch of the power distribution line.

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7. Claims 13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brooks et al. (U. S. Patent No. 6, 195, 241) in view of Rockwell et al. (U. S. Patent No. 6, 798, 211), and further in view of Wittlinger (U. S. Patent No. 4, 012, 668).

As for claims 13 and 18, Brooks in view of Rockwell discloses that the impedance device includes at least one inductor (L2 in Figures 2 and 5) connected in series with the power conductor (16) as in claims 12 and 17. Brooks in view of Rockwell does not disclose that the inductor is coupled to the neutral conductor proximate a connection between the neutral and earth. Wittlinger discloses coupling an inductor (70 in Figure 1) in series with the neutral conductor (12) proximate a connection between the neutral and earth ground. A person of ordinary skill in the art would find it obvious at the time of the invention to further modify Brooks to insert the inductor in series with the neutral conductor proximate a connection between the neutral and earth ground, as taught by Wittlinger, for monitoring faults in the power distribution system.

8. Claims 14-15 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brooks et al. (U. S. Patent No. 6, 195, 241) in view of Rockwell et al. (U. S. Patent No. 6, 798, 211), and further in view of Carter et al. (U. S. Patent No. 3, 913, 038).

As for claims 14-15 and 19-20, Brooks in view of Rockwell discloses the power distribution system as in claim 11 and 16. Brooks in view of Rockwell does not disclose that the impedance device is a concentric ferrite, coupled to the

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neutral proximate a connection between the neutral and earth ground. Carter discloses coupling a ferrite element concentric with a power conductor (74a-d in Figure 2; col. 3, lines 50-52). A person of ordinary skill in the art would find it obvious at the time of the invention to modify Brooks to use a ferrite element concentric with a power conductor, as taught by Carter, as the impedance device for the purpose of isolating the branches of the distribution system when a fault occurs (Brooks reference, col. 8, lines 42-44). In addition, it would have been obvious to one of ordinary skill in the art to further modify Brooks to couple the ferrite element to the neutral proximate a connection between the neutral and earth ground, for the purpose of detecting fault at different locations as desired.

9. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brooks et al. (U. S. Patent No. 6, 195, 241), in view of Carter et al. (U. S. Patent No. 3, 913, 038).

As for claim 4, Brooks discloses coupling impedance device to one of the neutral or power conductor as in claim 1. Brooks does not specifically disclose coupling a ferrite element concentric with one of the neutral or power conductor. Carter et al. (U. S. Patent No. 3, 913, 038) discloses coupling a ferrite element concentric with a power conductor (74a-d in Figure 2; col. 3, lines 50-52). A person of ordinary skill in the art would find it obvious at the time of the invention to modify Brooks to use a ferrite element concentric with a power conductor, as taught by Carter, as the impedance device for the purpose of isolating the

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branches of the distribution system when a fault occurs (Brooks reference, col. 8, lines 42-44).

As for claim 5, Brooks in view of Carter discloses the method as in claim 4. Brooks in view of Carter does not disclose coupling the ferrite element around the neutral conductor proximate to a connection between the neutral and earth. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to further modify Brooks to couple the ferrite element around the neutral conductor proximate to a connection between the neutral and earth, for the purpose of isolating/segmenting the distribution system at different locations for detecting the fault.

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brooks et al. (U. S. Patent No. 6, 195, 241), in view of Roberts et al. (U. S. Patent No. 6, 573, 726).

As for claim 9, Brooks discloses coupling an impedance device to the power conductor as in claim 1. Brooks does not disclose that the impedance device is a reactor. Roberts et al. (U. S. Patent No. 6, 573, 726) discloses a reactor (col. 1, lines 51-53). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Brooks to use a reactor as the impedance device, as taught by Robert, for the purpose of isolating the branches of the distribution system when a fault occurs (Brooks reference, col. 8, lines 42-44).

Conclusion

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11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lubkeman et al. (U. S. Pub. No. 2003/0085715) discloses locating faults on a power distribution system with a plurality of segments.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy He whose telephone number is (571) 272-2230. The examiner can normally be reached on 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AH
August 16, 2005.


ANJAN DEB
PRIMARY EXAMINER